

REMARKS

This is a full and timely response to the outstanding Office Action mail January 28, 2003 and the Advisory Action mailed May 12, 2003. This Response constitutes a submission pursuant to 37 C.F.R. 1.114(c). Reconsideration and allowance of the application and presently pending claims as amended, are respectfully requested.

1. Present Status of Patent Application

Upon entry of the amendments in this response, claims 1-6, 10-19, 23-26, and 45 remain pending in the present application. More specifically, claims 1, 15, and 26 are amended and claim 45 is added herein. These amendments and additions are specifically described hereinafter. It is believed that the foregoing amendments and additions add no new matter to the present application.

2. Response To Rejections

Response To Claim Rejections Under 35 U.S.C. Section 112, Second Paragraph

In the Office Action mailed January 28, 2003, claim 26 has been rejected Under 35 U.S.C. Section 112, second paragraph as allegedly being indefinite "because is still unclear what exactly the scrim is made up of. It is the Examiner's interpretation that 'up to 95%' includes 0% by weight and therefore, all the recited fibers are option[sic]." *Office Action* at page 2. The Examiner stated that "[i]t is suggested that Applicant amend their claim to include that the 'nonwoven scrim comprises more than 0% by weight and up to 95% by weight of the scrim.'" (Emphasis supplied in original) *Office Action* at 2. Applicants have complied with Examiner's request and have amended the claims accordingly. Thus, Applicants respectfully request that this rejection be withdrawn.

Applicants wish to clarify that the foregoing amendment has been made for purposes of better defining the invention in response to the rejections made under 35 U.S.C. §112, and not in response to the rejections made based on prior art. Indeed, Applicants submit that no substantive limitations have been added to the claims. Therefore, no prosecution history estoppel arises from this amendment. *Black & Decker, Inc. v. Hoover Serv. Ctr.*, 886 F.2d 1285, 1295 n. 13 (Fed. Cir. 1989); *Andrew Corp. v. Gabriel Elecs., Inc.*, 847 F.2d 819 (Fed. Cir. 1988); *Hi-Life Prods. Inc.*

v. Am. Nat'l. Water-Mattress Corp., 842 F.2d 323, 325 (Fed. Cir. 1988); *Mannesmann Demag Corp. v. Eng'd. Metal Prods. Co., Inc.*, 793 F.2d 1279, 1284-1285 (Fed. Cir. 1986); *Moeller v. Ionetics, Inc.*, 794 F.2d 653 (Fed. Cir. 1986).

Response To Claim Rejections Under 35 U.S.C. Section 102

In the Office Action mailed January 28, 2003, claims 1, 2, 4-6, 11 and 26 have been rejected under 35 U.S.C. Section 102(b) as allegedly anticipated by *Bailey et al.* (U.S. Patent No. 4,943,465). For a proper rejection of a claim under 35 U.S.C. Section 102(b), the cited reference must disclose all elements/features of the claim. *See, e.g., E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 7 USPQ2d 1129 (Fed. Cir. 1988).

Independent claim 1, as amended, recites the features including “a plurality of flame resistant fibers entangled to and with the nonwoven scrim on only one side of the scrim via at least one of the following: needlepunching, hydroentanglement, and chemical bonding.” Claim 26 claims “a plurality of flame resistant fibers that are entangled through only one side of the nonwoven scrim . . . , wherein the fibers are entangled to and with the nonwoven scrim via at least one of the following: needlepunching, hydroentanglement, and chemical bonding.” Independent claims 1 and 26 are allowable for at least the reason that *Bailey, et al.* do not disclose, teach, or suggest these features of claims 1 and 26. The composite of *Bailey, et al.* differs from these features of the claimed fabric in many ways.

The Examiner contends that *Bailey, et al.* disclose high temperature-resistant “threads [that] are needled through the scrim by needlepunching.” The “needle-punching” of *Bailey, et al.*, however, is different than the needlepunching claimed in claims 1 and 26 which results in a different article. In *Bailey, et al.*:

“[t]he scrim or scrims are attached to the paper by way of the network of high temperature-resistant threads (staple or continuous fibers) stitched through the scrim and the paper such that the scrim is mechanically locked to the paper by the thread. The network of threads are stitched through the scrim and paper in either a patterned configuration or random configuration. Thus, the thread may be simply laid onto the scrim and needled through the scrim and paper . . .”

(Emphasis added.) *Bailey, et al.*, column 6, lines 7 – 15. Because *Bailey, et al.* use staple or continuous fibers, theirs is a start and stop process where the fibers must be re-loaded in order

to continue the attachment of the scrims to the paper. The fabric of claims 1 and 26 that have flame-resistant fibers entangled to and with a non-woven scrim via needlepunching may be produced via a continuous, single process, which is faster and more cost-effective to produce than the composite of *Bailey, et al.* Additionally, stitching, as done by *Bailey, et al.* requires two threads: one through the eye of the needle and one from the bobbin. This is more complex than the fiber entangled with the scrim through only one side, as in claims 1 and 26.

Further, the high temperature-resistant threads of *Bailey, et al.*, are stitched to the scrim and paper, and not applied via the needlepunching process of claims 1 and 26. The result is that the fabric of claims 1 and 26 differs from the composite of *Bailey, et al.* The fabric of claims 1 and 26 is more uniform because the flame-resistant fibers are entangled throughout the scrim. Barbs on the needles pull the fibers back into the fabric as the needles retract through the scrim. Thus, the fibers are not locked to only one side of the scrim, but are locked on both sides of the scrim, and are uniformly dispersed throughout the scrim.

Additionally, because *Bailey, et al.* disclosed stitching, which is similar to quilting, the scrim to the paper with high temperature-resistant threads, this scrim and the paper are locked tightly together. With claims 1 and 26 the fibers, as noted above, are interlocked with the scrim. This yields a fabric with more loft and less density. Because the fabric of claims 1 and 26 is less dense than the composite formed by *Bailey, et al.*, the fabric of claims 1 and 26 have less heat transfer due to more air entrained in the fabric. The fabric of claims 1 and 26 will also be softer and more comfortable than the composite of *Bailey, et al.*

In addition, the threads of *Bailey, et al.* are exposed on the surface of their composite because they are used to stitch the scrim to the paper. Because they are exposed on a surface of the composite, they will be subject to more wear, and will abrade any fabric in contact with those fibers, thus breaking it down. In contrast, the fabric of claims 1 and 26 has the fibers intimately blended with the scrim, and are not lying disposed directly on top of the surface of the fabric. Thus, the flame-resistant fibers of the fabric of claims 1 and 26 will not lead to extra abrasion of any fabric in contact with the fabric of claims 1 and 26.

Further, the scrim and flame resistant fibers of claim 26 differ in chemical nature from that disclosed in *Bailey, et al.* The nonwoven scrim of claim 26 comprises "at least one of: melamine fibers, para-aramid fibers, meta-aramid fibers, and polybenzimidazole fibers." The

flame-resistant fibers of claim 26 include “at least one of aramid fibers, polybenzimidazole fibers, and melamine fibers.” These fibers are all organic fibers. In contrast, the fibers of *Bailey, et al.* are inorganic fibers. Specifically, *Bailey, et al.* teach that “[t]he fibers of all of the scrim, paper and threads are inorganic fibers, *e.g.*, glass fibers . . . , ceramic fibers . . . , metal fiber” *Bailey, et al.*, columns 5, line 67-column 6, line 3. While these may be high temperature-resistant fibers, they do not exhibit the flame resistance of the fibers claimed in claim 26. Additionally, *Bailey, et al.* teach that glass or quartz are preferred as their fibers (column 6, lines 3-6). Glass or quartz fiber tend to abrade over time and would not be a desirable choice for a fire-blocking fabric, as claimed in claims 1 and 26. Indeed, the inorganic fibers disclosed by *Bailey, et al.* tend to be stiff and inflexible inorganic molecules. In contrast, the organic fibers claimed in claim 26 are all made from heterocyclic organic compounds. Because melamine, the aramids, and polybenzimidazole are each formed of flexible rings that are able to move rotationally, these compounds lend the fiber a flexibility, suppleness, and abrasion resistance not found in the inorganic fibers disclosed by *Bailey, et al.*, even when the organic fibers are exposed to flame. Thus, the fibers themselves of claims 1 and 26 differ from those of *Bailey, et al.*

Further, the Examiner equates the high temperature resistant thread of *Bailey, et al.* with the flame resistant fibers of the present invention. It does not necessarily follow that a high-temperature resistant thread is equal to a flame resistant fiber because the flame resistant fiber is a fiber that burns slowly or is self-extinguishing after removal from an external source of ignition. Nothing in the *Bailey, et al.* reference indicates that its high temperature resistant threads are able to accomplish flame resistance.

Bailey, et al. teach a composite of paper and scrim, with the scrim being disposed on both sides of the paper and mechanically locked to the paper by high temperature resistant threads. In contrast, the claims do not claim a composite, but instead claim a fabric. The textile industry has its own nomenclature, with different words having precise meanings in the textile art. According to the Dictionary of Fiber & Textile Technology, Hoechst Celanese Corporation, 1999 (copies of all definitions are attached hereto as Exhibit “A”), the definition of a composite is “an article or substance of two or more constituents, generally, with reinforcing elements dispersed in a matrix or continuance phase;... or a structure made by laminating a nonwoven fabric with another nonwoven or with other materials.” The definition for a fabric, however, is “a planar textile

structure produced by interlacing yarns, fibers, or filaments.” Thus, a composite differs from a fabric in both composition, and in method of production. The composite formed by *Bailey, et al.* may be flexible, but is not the flexible fabric of the present invention that may be incorporated into garments.

Additionally, *Bailey, et al.* provide that the scrim must be placed on both sides of the paper, and therefore needlepunching must be from both sides of the paper or, after needlepunching a scrim on one side, the paper is reversed and another scrim is needlepunched on the other side. *See* column 6, lines 7-23. In contrast, the flame resistant fibers of claims 1 and 26 are entangled to and with the scrim on one side only. Thus, the present invention as claimed does not require the double-reinforcement that is necessary in *Bailey, et al.*

With respect to the material that is entangled with the scrim, *Bailey et al.* use high temperature resistant threads, whereas claims 1 and 26 claim flame resistant fibers. The definition of a thread differs from that of a fiber. A thread is defined by the aforementioned dictionary as “a slender, strong strand or cord. Most threads are made by plying and twisting yarns.” A fiber, however, is defined as “a unit of matter that forms the basic element of fabrics and other textile structures.” (Emphasis added.) Therefore, *Bailey, et al.* require a thicker high temperature resistant material, *i.e.*, thread, to accomplish its purpose. Claims 1 and 26, in contrast, include only fibers, a thinner and more basic structure, entangled to and with the nonwoven scrim.

Thus, for at least these reasons, *Bailey, et al.* do not anticipate claims 1 and 26, and the claim rejections should be withdrawn.

Because independent claim 1 is allowable over the prior art of record, its dependent claims 2, 4-6 and 11 are allowable as a matter of law, because these dependent claims contain all features/elements of their respective independent claim 1. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Additionally and notwithstanding the foregoing reasons for the allowability of claim 1, these dependent claims recite further features and/or combinations of features, as is apparent by examination of the claims themselves, that are patentably distinct from the prior art of record. Hence, there are other reasons why these dependent claims are allowable. For example, claim 4 claims flame resistant fibers that include polybenzimidazole fibers, and melamine fibers. These

fibers are not disclosed by *Bailey, et al.* Thus, for at least this reason as well, claim 4 is not anticipated by *Bailey, et al.*

Claim 13 has been rejected 35 U.S.C. Section 102(b) as anticipated by, or, in the alternative, 35 U.S.C. Section 103(a) as obvious over *Bailey, et al.* The Examiner contends that it is reasonable to presume that satisfying FAA seat burn requirements is inherent to *Bailey, et al.*'s composite. Applicants respectfully traverse this assertion. Because the composite and material of the composite in *Bailey, et al.* is different from the fire-blocking fabric of the present invention, as outlined above, in several different ways, it is not inherent that the fire-blocking characteristic of the present invention would be met by the composite of *Bailey, et al.* Thus, Applicants respectfully request that the rejection of this claim be withdrawn as well.

Response To Claim Rejections Under 35 U.S.C. Section 103

(1) In the Office Action mailed January 28, 2003, claims 10, 12 and 14 have been rejected under 35 U.S.C. Section 103(a) as purportedly being unpatentable over *Bailey, et al.* Claims 10, 12 and 14 depend from independent claim 1. Independent claim 1 is believed to be allowable over *Bailey, et al.* for at least the reasons set forth above. Thus, claims 10, 12 and 14 should be allowable as well for at least the reason that independent claim 1 is allowable. Additionally, these dependent claims recite further features and/or combinations of features that are patentably distinct from *Bailey, et al.* Thus, there are other reasons why these dependent claims are allowable.

It is well established at law that, for a proper rejection of a claim under 35 U.S.C. §103 as being obvious based upon a single reference, the reference must disclose, teach, or suggest, either implicitly or explicitly, all elements/features/steps of the claim at issue. *See, e.g., In Re Dow Chemical*, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 208 USPQ2d 871, 881 (CCPA 1981). Claim 10 claims a scrim that comprises approximately 11% to approximately 60% of the fabric by weight. Applicants have discovered that a weight of a scrim within this range increases the resilience and durability of the fire-blocking fabric. Because *Bailey, et al.* does not teach or suggest a fabric, much less a fire-blocking fabric, *Bailey, et al.* do not teach or suggest a scrim within this range that would give the beneficial properties that this range gives a fire-blocking fabric.

Thus, for at least this reason as well, the rejection of claim 10 should be withdrawn.

(2) In the Office Action mailed January 28, 2003, claims 3, 15-19 and 23-25 have been rejected under 35 U.S.C. Section 103(a) as purportedly being obvious over *Bailey, et al.* in view of *Ilg, et al.* (U.S. Patent No. 5,560,990) and *Behnke, et al.* (U.S. Patent No. 4,120,914). The combination of *Bailey, et al.* in view of *Ilg, et al.* and *Behnke, et al.* with respect to claims 3, 15-19 and 23-25 fails to establish a *prima facie* case of obviousness.

It should be noted that claim 3 is dependent from independent claim 1, which is believed to be allowable in view of *Bailey, et al.*, as noted above. Because claim 1 is allowable, its dependent claim 3 should also be allowable, and the rejection should be withdrawn.

(a) There is No Motivation to Combine *Bailey, et al.* with *Ilg, et al.* and *Behnke, et al.*

There is no suggestion or motivation in the references to combine the *Bailey, et al.*, *Ilg, et al.*, and *Behnke, et al.* references. In order to establish the *prima facie* case of obviousness, the Examiner must establish a suggestion or motivation either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art to modify the reference or combine reference teachings in order to result in the claimed invention. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). In the present case, the *prima facie* case of obviousness has not been established because there is no suggestion or motivation in the art to combine *Bailey, et al.* with *Ilg, et al.* and *Behnke, et al.*

Further, the Office cannot pick and choose among isolated disclosures in the prior art with the invention in mind. This is impermissible hindsight reconstruction, and is also further evidence of a lack of suggestion or motivation to combine the references. *In re Fine* at 1075. Here, the Office has chosen among very isolated disclosures in very different arts in order to find all of the ingredients found in the present invention. Thus, this is impermissible hindsight reconstruction and proves that there was no suggestion or motivation in these references to combine them.

Additionally, the Board of Patent Appeals and Interferences' rejection of a need for any specific hint or suggestion in the art to combine references was recently held to be legal error. *In*

re Lee, 277 F.3d 1338 (Fed. Cir. 2002). Moreover, the Office “cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies.” *Id.* at 1345. Further, the court stated that the specific teaching that would have suggested the claimed combination must be present, and subjective belief could not be relied on to support the combination of references.

While *Bailey, et al.*, disclose a composite, *Ilg, et al.* simply disclose a fiber blend. Indeed, *Ilg, et al.* teaches that “[t]he present invention involves blending different ready-produced fibers to thereby produce fiber blends.” *Ilg, et al.*, column 1, lines 45-47. The fiber blends disclosed by *Ilg, et al.* are organic fibers. As noted above, *Bailey, et al.* specifically teach that the fibers used throughout their composite are all inorganic fibers. One skilled in the art would not be motivated to combine the teachings of *Bailey, et al.* with *Ilg, et al.* Additionally, *Behnke, et al.* also teach an organic fiber. For similar reasons, one skilled in the art would not be motivated to combine the teachings of *Bailey, et al.* for inorganic fibers with that of *Behnke, et al.* for organic fibers.

Because the Office has cited references that are not properly combinable, no *prima facie* case of obviousness has been established, the rejection of claims 3, 15-19, and 23-25 should be withdrawn.

(b) The Combination of *Bailey, et al.* with *Ilg, et al.* and *Behnke, et al.* Does Not Render Obvious the Present Claimed Invention

It is well established at law that, for a proper rejection of a claim under 35 U.S.C. §103 as being obvious based upon a combination of references, the cited combination of references must disclose, teach, or suggest, either implicitly or explicitly, all elements/features/steps of the claim at issue. *See, e.g., In re Dow Chem.*, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988) and *In re Keller*, 208 USPQ 871, 881 (CCPA 1981).

Even if the *Bailey, et al.* and *Ilg, et al.* and *Behnke, et al.* references are combined, the combination does not render obvious the present independent claims 15-19, and 23-25. Independent claim 15, as amended, reads as follows:

15. A fire-blocking fabric consisting of:
a nonwoven scrim comprising approximately 50% melamine fibers, approximately 25% para-aramid fibers, and approximately 25% meta-aramid fibers; and
a plurality of flame resistant fibers that are entangled to and with only one side of the nonwoven scrim, the fibers including at least one of aramid fibers, polybenzimidazole fibers, and melamine fibers, wherein the fibers are entangled to and with the nonwoven scrim via at least of the following: needlepunching, hydroentanglement, and chemical bonding.

Independent claim 15 is allowable for at least the reason that the combination of *Bailey, et al.* in view of *Ilg, et al.* and *Behnke, et al.* does not disclose, teach, or suggest the features that are recited from claim 15 above. More specifically, *Bailey, et al.* do not teach or suggest many aspects of the claimed invention such as a fire-blocking material with flame resistant fibers, a fabric end product, the use of fibers instead of threads, and only entangling the fibers with only one side of the scrim.

Additionally, neither *Ilg, et al.* nor *Behnke, et al.* cure these deficiencies of *Bailey, et al.* In particular, *Ilg, et al.* do not teach a fabric, do not teach entangling fibers to a scrim, and do not teach that the fibers may include polybenzimidazole, all as claimed in claim 15. Further, *Behnke, et al.* do not cure these deficiencies of *Bailey, et al.* and *Ilg, et al.* Specifically, *Behnke, et al.* do not teach a fabric, do not teach a scrim of the composition of claim 15, and do not teach using flame resistant polybenzimidazole fibers.

Consequently, the combination of *Bailey, et al.* in view of *Ilg, et al.* and *Behnke, et al.* does not render claim 15 obvious, and the rejection should be withdrawn.

Because independent claim 15 is allowable over the prior art of record, its dependent claims 16-19 and 23-25 are allowable as a matter of law, for at least the reason that these dependent claims contain all features/elements/steps of their respective independent claim 15. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Additionally and notwithstanding the foregoing allowability of these dependent claims, the dependent claims recite further features and/or combinations of features, as is apparent by examination of the claims themselves, that are patentably distinct from the prior art of record. Hence, there are other reasons why these dependent claims are allowable.

Claim 16, by way of example, claims a fabric that satisfies FAA seat burn requirements. Because *Bailey, et al.* do not teach or suggest the construction of a flame-resistant fabric, much less a fabric constructed as the fabric of the present invention, there is no teaching or suggestion that the composite of *Bailey, et al.* would meet FAA seat burn requirements. *Ilg, et al.* and *Behnke, et al.* also do not teach or suggest such a fabric, and thus do not cure the deficiencies of *Bailey, et al.* The Examiner argues that “the high temperature resistant threads of *Bailey, et al.* are the same as Applicant’s flame resistant fibers because both *Bailey, et al.* and Applicant use the same materials and therefore, do the same thing.” *Office Action*, page 4. Applicants respectfully traverse. As noted above, the Applicants claim organic fibers, whereas *Bailey, et al.* teach inorganic fibers. Additionally, Applicants claim a fabric, with the fibers entangled with the scrim, whereas *Bailey, et al.* simply teach a paper that is stitched to a scrim to form a composite. Thus, the fabric of independent claim 15 differs from the composite of *Bailey, et al.*, and therefore, the characteristics of that fabric, a fabric that satisfies FAA seat burn requirements, as claimed in claim 16, is not obvious in view of *Bailey, et al.*, even if *Bailey, et al.* is combined with *Ilg, et al.* and *Behnke, et al.* Therefore, for at least these reasons also, claim 16 is allowable and Applicants respectfully request that the rejection be withdrawn.

3. Response to Advisory Action Comments

In the Advisory Action of May 12, 2003, the Examiner stated that

Applicant argues that the *Bailey et al.* reference which discloses needlepunching is different from the needlepunching of the present invention. It should be noted that the method of forming an article is not germane to the issue of patentability of the article itself.

Advisory Action at 2. Applicant respectfully traverses. Because *Bailey, et al.* disclose a different method for producing their composite than Applicant uses to produce its fabric, the articles themselves are structurally different, as outlined above. The fibers of the claimed fabrics are not locked to only one side of the scrim, but are locked on both sides of the scrim, and are uniformly dispersed throughout the scrim. Additionally, *Bailey, et al.* do not teach or suggest many other aspects of the claimed invention such as a fire-blocking material with flame resistant fibers, a fabric end product, and the use of fibers instead of threads.

4. Newly Added Claim 45

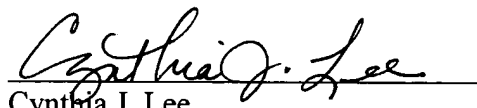
Claim 45 recites in part “a plurality of flame resistant fibers that are entangled with and enter through only one side of the nonwoven scrim....” Because the fibers are entangled with and enter only one side of the scrim, the arrangement of the fibers disposed within the scrim will be different than if the fibers were needled through both sides of the scrims. As indicated above, *Bailey, et al.* disclose needling the scrim to both sides of a sheet of paper, thereby stitching the threads through both sides of the scrim. Thus, the arrangement of the fibers of the composite of *Bailey, et al.* differs from the arrangement of the fibers in the fabric of claim 45.

Additionally, claim 45 recites in part that “the fibers are interlocked throughout the scrim, producing strength through entanglement and lending the scrim increased flame resistant properties.” Because *Bailey, et al.* do not interlock its threads throughout its scrim, the composite of *Bailey, et al.* does not anticipate at least these properties of the fabric of claim 45. Thus, Applicants respectfully submit that claim 45 is allowable.

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicants respectfully submit that all rejections have been traversed, rendered moot, and/or accommodated, and that the now pending claims 1-6, 10-19, 23-26, and ~~45~~⁴⁹ are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephone conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,



Cynthia J. Lee

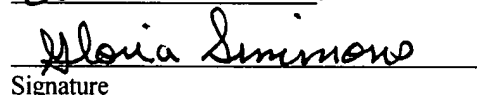
Registration No. 46,033

**THOMAS, KAYDEN,
HORSTEMEYER & RISLEY, L.L.P.**

Suite 1750
100 Galleria Parkway N.W.
Atlanta, Georgia 30339
(770) 933-9500

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